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### COMPLETE SPECIFICATION.

#### Improvements in Drying Cylinders.

I, JOSEPH DILWORTH, of New Mills, County of Derby, a British Subject, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to improvements in drying cylinders for textile fabrics, paper and other webbing material of the type provided with an inner and an outer cylinder to enclose any space through which the heating fluid passes from one end to the opposite end.

It has been proposed to circulate water through the annular space between the two cylinders and to feed steam into the water to heat it.

The object of the invention is to confine the steam for heating the inner cylinder to the annular space between the two cylinders, and thus scour the water from the inside of the outer cylinder by increasing the steam velocity.

The invention comprises a drying cylinder of the type referred to in which steam for heating the inner cylinder is admitted at one end of the outer cylinder, traverses the annular space between the two cylinders and is exhausted at the opposite end of the outer cylinder, the ends of the inner and outer cylinders having closures comprising end plates provided with ports or slots therein through which the steam enters and the water escapes respectively, the inner cylinder being pressurised by air or an inert gas to bring the pressure therein substantially equal to that in the annular space between the cylinders.

The invention will be described with reference to the accompanying drawings:—

Fig. 1 is a longitudinal section through the drying cylinder.

Fig. 2 is an elevation of the drying cylinder with the trunnion  $a^1$  omitted at the steam inlet end.

Fig. 3 is an elevation of the drying cylinder with the trunnion  $a$  omitted at the water delivery end.

Fig. 4 is a section on line 4—4, Fig. 1 to a larger scale.

Fig. 5 is an end view of the water delivery nozzles to a larger scale than Figs. 1 to 3.

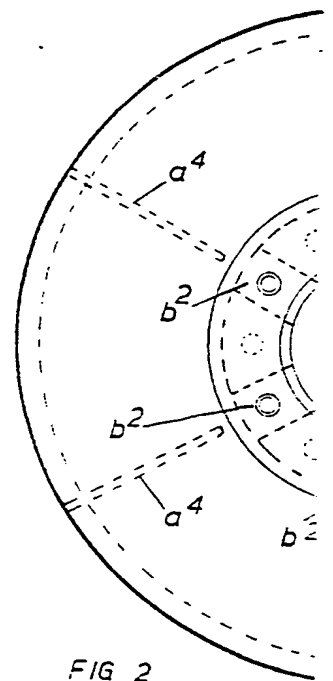
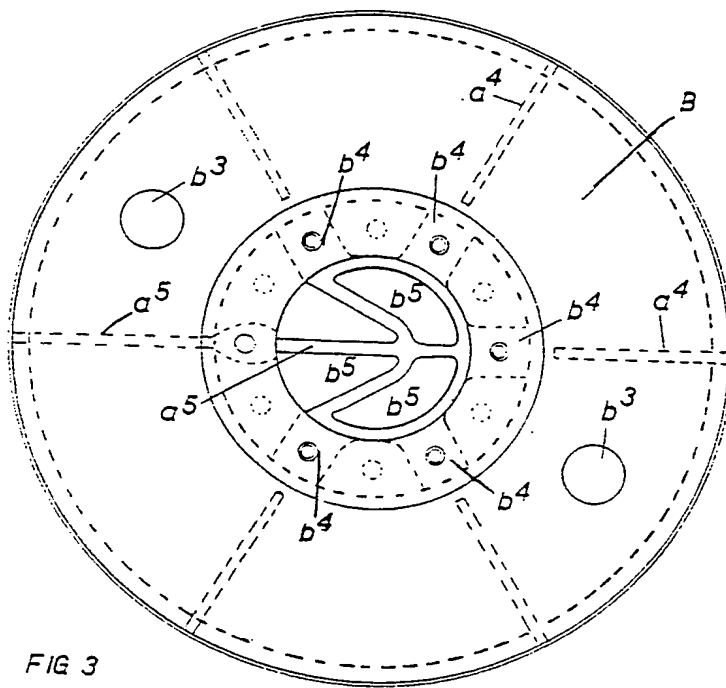
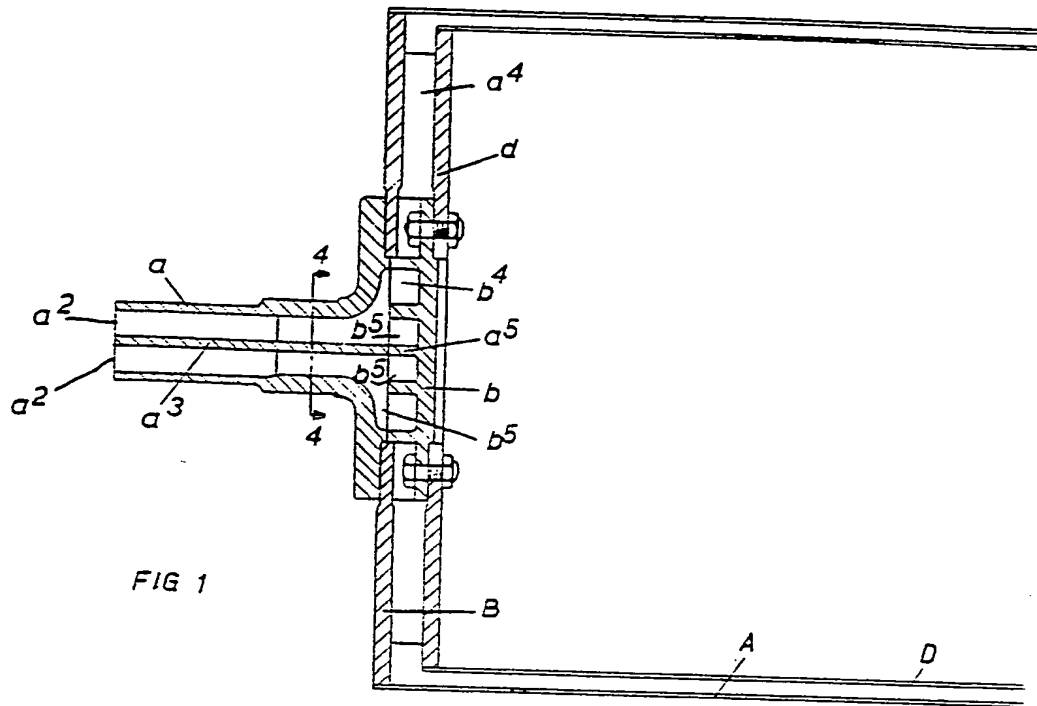
Fig. 6 is a detail view enlarged of the welded joints between the outer cylinder and the end discs or covers.

An outer cylinder A for drying textile fabrics is formed with end discs or covers B B<sup>1</sup> mounted on metal end plates  $b b^1$  and provided with trunnions  $a a^1$  on which the ends of the cylinder rotate. Packing is provided on the bolts securing the end discs or covers B B<sup>1</sup> to the end plates to prevent the escape of steam.

A second cylinder D of smaller diameter and length than the cylinder A and closed at the ends by metal discs or covers  $d d^1$  is mounted inside the outer cylinder A, the end discs  $d d^1$  being bolted to the end plates  $b b^1$  of the cylinder A.

The second or inner cylinder D is provided with a valve  $d^2$  through which air or other inert gas is pre-loaded into the cylinder to pressurise the cylinder D to the pressure of steam employed in the space between the cylinders A and D. This is then sealed and remains at the pressurised pressure.

Steam is admitted through the trunnion  $a^1$  of the cylinder A and through slots or ports  $b^2$  in the end plate  $b^1$  into the annular space between the end plate B<sup>1</sup> and the end disc  $d^1$  of the inner cylinder D and passes



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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of the Original on a reduced scale.

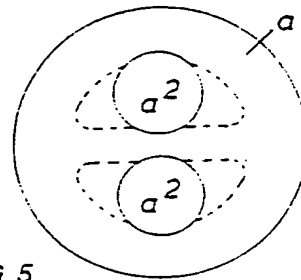
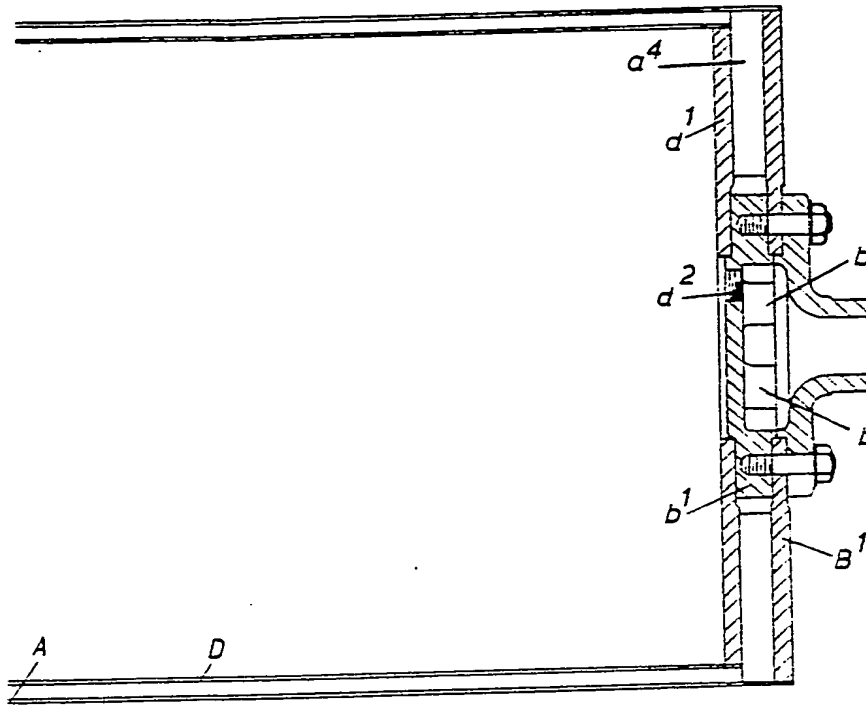


FIG 5

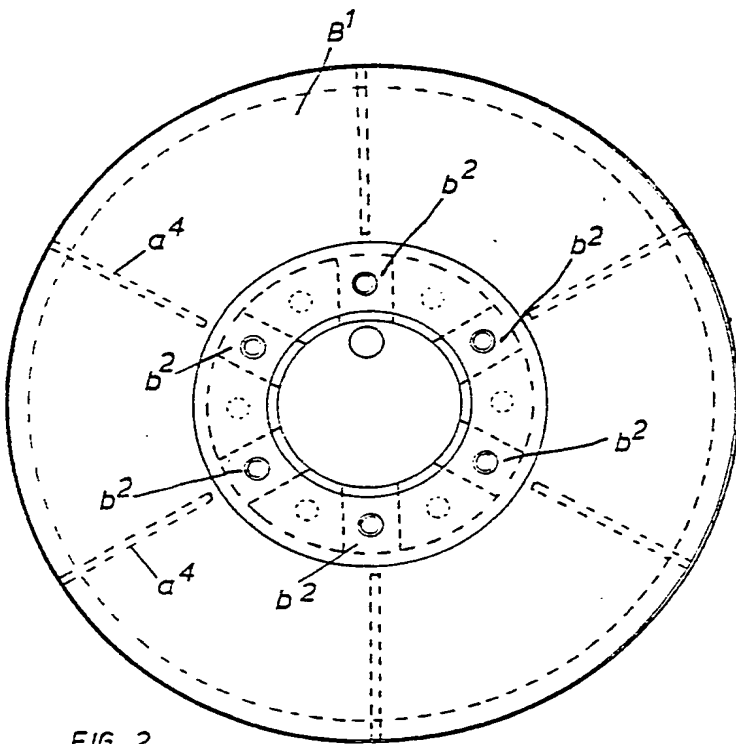


FIG 2

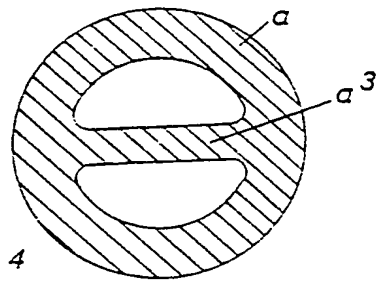


FIG 4

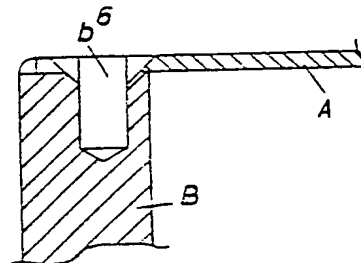


FIG 6

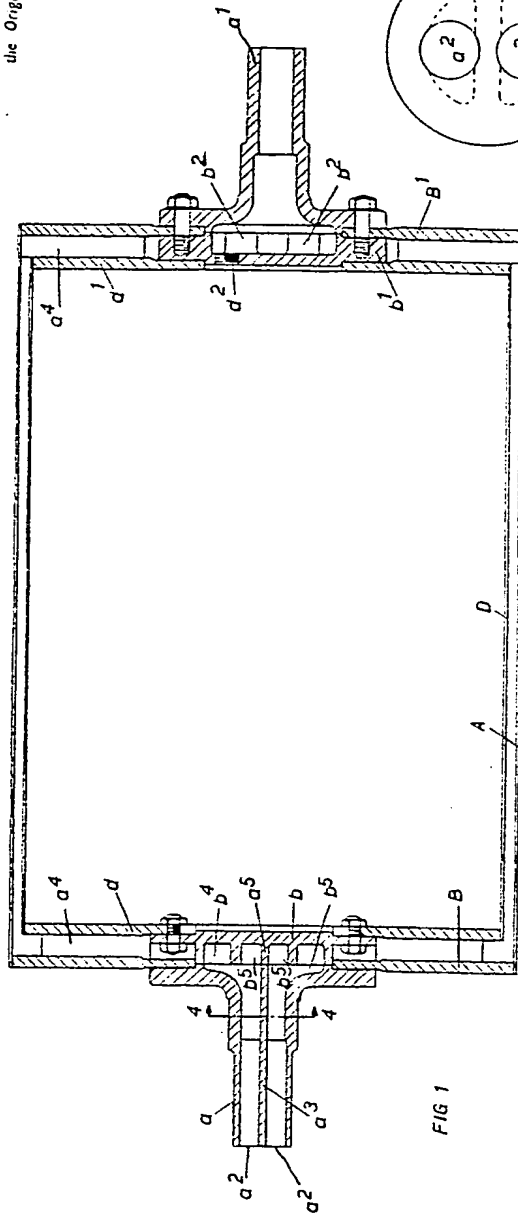


FIG 1

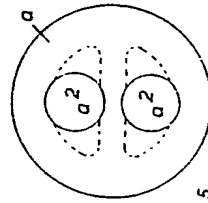


FIG 5

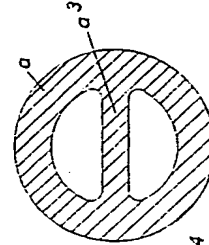


FIG 4

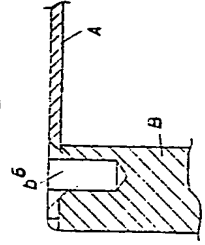


FIG 6

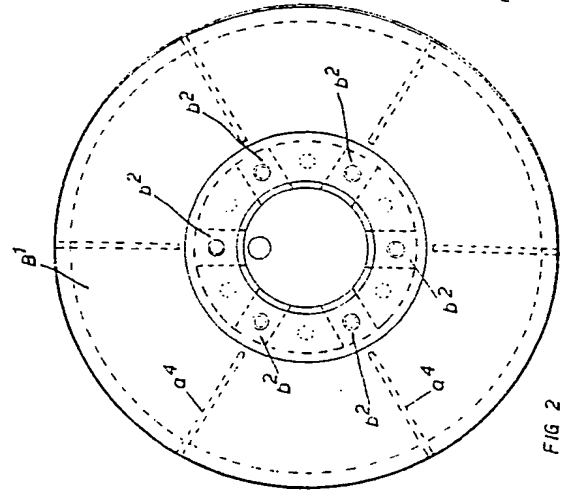


FIG 2

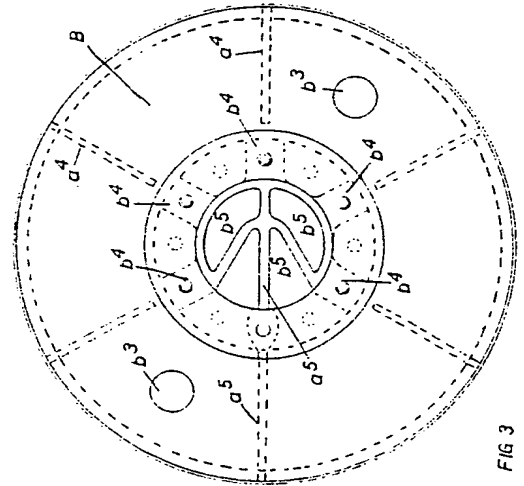


FIG 3